

DRAFT MEETING MINUTES
MARSSIM WORK GROUP MEETING
FOR THE DEVELOPMENT OF THE
MULTI-AGENCY RADIATION SURVEY AND
ANALYSIS OF MATERIALS AND EQUIPMENT
SUPPLEMENT TO MARSSIM

September 26 to 28, 2006

Contract No. GS-10F-0360N
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MARSSIM Work Group Meeting

September 26 to 28, 2006

Purpose

The MARSSIM Work Group held a meeting from September 26 to 28, 2006 to review revisions to Chapters 1 and 2 of the MARSAME Supplement to MARSSIM, to discuss responses to comments on Chapters 5 and 7 of the Internal Agency Review Draft of MARSAME, and schedule the remaining tasks for developing a Public Review Draft of MARSAME for release by December 1, 2006. Revisions to Chapter 2 had been provided to the Work Group members prior to the meeting incorporating Work Group responses to comments on the Internal Agency Review Draft dated March 2006 and revisions to Chapter 1 were provided at the meeting. The purpose of the meeting was:

- Either approve the revisions to Chapters 1 and 2, or provide additional information to further revise the chapters and adequately respond to the comments.
- Provide sufficient information for the contractor to complete revisions to Chapters 5 and 7 and adequately respond to comments on the Internal Agency Review Draft of MARSAME.
- Prepare a schedule for completing a Public Review Draft of MARSAME by December 1, 2006.

Location

The meeting was held at the Environmental Protection Agency offices at 1310 L Street in Washington DC.

Discussion

Tuesday September 26, 2006

The Work Group started the meeting with a review of Chapter 2. There was an extended discussion concerning an ORIA comment on Line 280 of the Internal Agency Review draft. The Work Group recommended response was to change the title of Section 2.3 to “Describe the M&E” and insert a new Section 2.4 titled “Design and Implement Preliminary Surveys.” The numbers of the two sections will be reversed (i.e., “Describe the M&E” will be Section 2.4). The new Section 2.3 will include the introduction from the old Section 2.3, but none of the subsections. The new Section 2.4 will include a new introduction and the old Sections 2.3.1, 2.3.2, and 2.3.3. The two boxes at the bottom of Figure 2.2 will be combined into a single box referencing Section 2.4. All internal references in the document need to be updated to reflect the changes to Chapter 2. The Work Group also stated that all EPA QA documents were updated with new versions in 2006. The entire document needs to be reviewed and use the updated EPA QA references. Chapter 2 was reviewed page by page to ensure all of the comment responses had been incorporated correctly.

After a break the Work Group started their review of Chapter 5. R. Meck stated that the comments on the Internal Agency Review draft did not seem to present any major problems with preparing the Public Review draft. The Work Group developed a response for several comments that requested the development of software to assist users (e.g., USACHP comment on line 1 of Chapter 5). The response will state that training will be developed to assist individuals with comprehension of the technical topics in MARSAME. Work Group members also provided editorial suggestions to help clarify the text during a page by page review of Chapter 5. K. Snead provided clarification of the comment on line 295. Chapters 1 through 4 and six provide information on what the user should do. Chapter 5 provides a mixture of what to do and why the user should do it as described. This makes Chapter 5 a stumbling block while reading the document. The recommendation is that lines 286 through 294 describe what to do, and should stay in Chapter 5. The information from line 295 to the end of the section describes why, and should be moved to an appendix. After a discussion of the comment, the Work Group directed the contractor to revise Sections 5.6, 5.7, and 5.8 to present “what to do” in these sections of Chapter 5, and move the “why to do it” information to three separate appendices (i.e., one for each section topic from Chapter 5). All of the appendices will be reordered to reflect when they are introduced in the document. The Work Group also discussed the table of symbols included in Chapter 5. The Work Group requested that the entire table be moved to the front of the document as part of the introductory material. A smaller table will be provided at the start of each statistical section (i.e., Section 5.5, 5.6, and 5.7) just describing the symbols used in that section as a quick reference. The NRC comment on line 1674 requested that “constancy” be included as a quality control issue. The Work Group was unsure as to what the term constancy referred to, so R. Meck was tasked with asking the commenter about their comment. The commenter stated that the comment was related to counting a point source with a hand-held detector and getting the same result every day, which is related to the precision of the instrument. The Work Group recommended that the term constancy be included on line 1690 along with a definition of the term. The contractor was tasked with making all of the recommended changes in Chapter 5.

The Work Group ended the first day with a discussion of ProUCL compared to FLUCL. ProUCL is the software designed by EPA to calculate upper confidence limits for use in risk assessment calculations. MARSAME references ProUCL in Chapter 6 as an available method for calculating 95% upper confidence levels. Recently, the State of California requested that FLUCL be used instead of ProUCL for datasets with more than 15% non-detects. FLUCL was developed by the University of Florida to address problems with small data sets (i.e., less than ten data points) and data sets with large (i.e., greater than 15%) amounts of data reported as non-detects (i.e., censored data, qualitative data, results below the detection limit). C. Gogolak stated that ProUCL is aware of the problems with the software and is in the process of releasing a new version of ProUCL that incorporates the changes from FLUCL. The Work Group decided that ProUCL will remain in Chapter 6 as a reference since MARSAME does not generate small data sets with non-detects, and no comments were received on the use of ProUCL in MARSAME. In addition, C. Gogolak will contact the authors of ProUCL and inform them of the planned final release date for MARSAME of June 2006. If the release of the revised version of ProUCL can be coordinated with the release of the final MARSAME, the issue will be resolved.

Wednesday September 27, 2006

R. Meck initiated a discussion about the Federal Register notice announcing the availability of the Public Review draft of MARSAME to start the day. A single page including original signatures for all agencies included as part of the announcement is required. If all of the participating agencies want to have an announcement, the preparations for placing the announcement should begin soon. A. Williams proposed that DOE be the sole agency for announcing the availability of MARSAME, but include all of the agency names in the announcement. That way only one signature is required and the preparation time is reduced. The Work Group decided that NRC should announce the availability of MARSAME, but all of the agency representatives will work together to develop the announcement.

The Work Group continued with a page by page review of comments on the Internal Agency Review draft of Chapter 7. A comment on line 1082 pointed out issues associated with situations when the scan detection limit does not meet the survey objectives. The Work Group decided that this problem should be presented to the SAB as a question during the peer review. A comment on line 1208 started a discussion concerning the use of SI units in MARSAME. The Work Group decided that the problems could be presented using conventional units, as long as SI units were included in the answer. **Following the meeting, NRC Publications notified the NRC representative that all problems must primarily use SI units or the document will not meet the minimum requirements for a NUREG. The contractor was tasked with changing all of the examples in the document to use SI units.** A comment on line 1245 questioned the selection of equation within the example. The contractor will rework the example to include the high count rate equation as an exercise, which should provide the exact same answer as the low count rate calculation currently shown in the example. A comment on line 1479 identified a problem with rounding errors, which started a discussion on significant figures. The document needs to be consistent with MARSSIM and MARSAME guidance to carry through as many digits as possible until the final answer. Assigning the correct number of significant digits to the final answer will ensure accuracy and reduce or eliminate rounding errors. The contractor will review the entire document to ensure the proper use of significant digits throughout the supplement.

The Work Group reviewed the Parking Lot items listed in the minutes from the June meeting to ensure that all of the issues had been resolved.

- I. Technical editing will be performed prior to release of the final MARSAME. Performing a complete technical edit of MARSAME at this time would delay release of the Public Review draft as well as the final MARSAME.
- II. Implementation help will be provided in the form of training and providing references to software packages that address specific tasks within MARSAME, such as ProUCL for calculating 95% upper confidence intervals and GUMCALC for performing uncertainty calculations.
- III. User friendliness is provided through reorganization and restructuring of Chapter 2 and Chapter 5, along with development of a Roadmap for MARSAME.

- IV. Development of a risk-based example cannot be completed and still release the Public Review draft by December 1, 2006. MARSAME training may be able to include a risk based examples as part of the implementation help.
- V. The graded approach in MARSAME is identical to the graded approach in MARSSIM. The MARLAP definition of a graded approach will also be considered when developing a glossary definition.
- VI. The changes to the document based on the June meeting minutes were reviewed and approved by the Work Group.
- VII. Reorganization of Chapter 2 is described under the review of Chapter 2 on September 26 (see above).
- VIII. The development of SOPs was addressed by adding text to Section 2.2.5, including a reference to Section 3.10. A new Section 2.6 titled "Developing SOPs" will not be prepared for the Public Review draft of MARSAME.
- IX. The text on lines 18 to 20 of Chapter 4 in the Internal Agency Review draft adequately address the concern stated in the comment. No changes were made to the document as a result of this issue.
- X. Chapter 3 was restructured to move Section 3.7 before Section 3.6.
- XI. The Work Group discussed the use of Scenario B. The comment is directly responded to with the information in footnote 4 on page 4-7. No changes were made to the document as a result of this issue.
- XII. All citations to Regulatory Guide 1.86 will be removed from the document. K. Snead stated that EPA believed the references to ANSI N13.12 were appropriate and could remain in the document.
- XIII. Changes made to Chapter 6 in response to this issue were reviewed by the Work Group and approved.
- XIV. The Work Group discussed revisions to Chapter 5 to respond to comments on the Internal Agency Review draft on September 26 (see above).
- XV. The Work Group believes there is no need to develop new software at this time. Existing software programs are available to support many of the sections in MARSAME. This issue can be addressed by developing a training program for MARSAME.
- XVI. The steps used to calculate the upper confidence level in Chapter 6 were revised so that only the maximum upper confidence level is calculated.
- XVII. S. Doremus is tasked with completing a draft version of the table of symbols for review by the Work Group and inclusion into the Public Review draft of MARSAME.
- XVIII. The Work Group determined that an entire Quality Assurance Program is required to develop an SOP and the resources required to develop such an example are better spent clarifying the information in MARSAME. It is likely that the

development of this example would more than double the size of MARSAME, detracting from the information in the chapters.

- XIX. The term clearance will be used in MARSAME. No changes were made to the document as a result of this issue.
- XX. The contractor will add a calculation to the example showing what happens if the high count rate equation is used instead of the low count rate equation. For this example, the results are expected to be identical.
- XXI. The contractor will review the entire document to ensure the proper and consistent use of significant digits throughout MARSAME.
- XXII. MARSAME will use the Rad Toolbox program provided by NRC as a reference for radiological data throughout MARSAME. The JAERI data in the Rad Toolbox will serve as the standard reference for this type of data.
- XXIII. No changes were made to the document as a result of this issue.

Three editorial comments were provided by the Work Group for sections of the MARSAME that had already been reviewed. Chapter 3, line 310, Al should be AL. Chapter 6, line 390, “he” should be “in the.” Global search for CSM, which should be conceptual site model since there is no abbreviation for conveyORIZED survey monitor which will be spelled out.

The Work Group spent the rest of the day discussing the remaining parts of MARSAME to be completed prior to December 1, 2006. The order of material in the Public Review draft will be:

- Inside front cover legal statements provided by NRC for all NUREG documents
- Abstract (no change from previous version)
- Disclaimer (no change from previous version)
- Contents
- List of Tables
- List of Figures
- Acknowledgements
- Abbreviations and Acronyms
- Symbols and Notations
- Conversion Factors table (from MARSSIM)
- Roadmap (to be developed)
- Chapters 1 through 7 (including revisions from current meeting)
- Appendices
- References (includes references used in appendices)
- Glossary
- Index

The Work Group developed a preliminary version of the acknowledgements. K. Snead will contact Mary Clark for a complete list of SAB/RAC members participating in the MARSAME consults.

There was an extended discussion concerning the development of an index. The Work Group decided that the index will include keywords from the Tables of Contents, List of Figures, and List of Tables, as well as all words from the glossary, agency names, and place names. Only the ten most important uses of each term will be included in the index. Any questionable usage will be passed on to the Work Group for final approval. Lists of key terms for each chapter were developed by the Work Group.

Thursday September 28, 2006

The Work Group started by reviewing the revisions to Chapter 1. There were several comments that led to a recommendation from the Work Group to include a new section on cost benefit in Chapter 1 (i.e., Section 0 line 2, Chapter 1 line 155, Chapter 1 line 196, and Chapter 4 line 331). The Work Group discussed the options for revising Chapter 1 and whether discussions of cost were appropriate or necessary for MARSAME. The Work Group decided to include a small amount of text in Section 1.3. Since all of the comments were from DOE, A. Williams was tasked with drafting the language to include in Section 1.3 to respond to these comments.

D. Alberth requested clarification on the terms inherent and ambient background in Tables 1.2 and 1.3. The Work Group discussed the terms inherent, ambient, background, radiation, and radioactivity. Ambient radioactivity is all radioactivity, excluding inherent radioactivity and contamination but including environmental radioactivity, that affects the measurement. This is related to the definition of instrument background in MARLAP. Inherent radioactivity is radioactivity that originates from radioactive material that is part of the M&E. The contractor will develop these ideas into glossary definitions for MARSAME. Table 1.2, Table 1.3, and Section B.3 will be reviewed for consistency with these terms. The term ambient radioactivity will be deleted from line 25 in Appendix B.

The Work Group discussed the possibility of including the short write up on scan speed provided by R. Meck as a new appendix to MARSAME. The Work Group decided that the write up did not provide adequate detail, and the work required to fully develop this idea into an appendix could not be completed by December 1, 2006. The write up will not be included as an appendix for the Public Review draft of MARSAME.

The schedule for completing and releasing the Public Review draft of MARSAME is:

October 20, 2006. Teleconference to approve draft meeting minutes and Public Review drafts of Chapters 1, 2, 3, 4, and 6.

October 30, 2006. Teleconference to approve Public Review drafts of Chapters 5 and 7, and assign contractor tasks to complete other sections of MARSAME.

December 1, 2006. MARSAME Public Review draft released for comment. Start of SAB peer review. (Requires completion of remaining sections of MARSAME, final review and approval by Work Group, and development and approval of a Federal Register announcement to be released by NRC.)

March 5 to 9, 2007. MARSSIM meeting to receive initial comments and start deciding on responses to comments. (SAB peer review comments expected in March or April).

April 10 to 13, 2007. MARSSIM meeting to finalize three chapters (possibly 3, 4, and 6) and appendices, and discuss additional revisions based on SAB comments.

May 7, 2007. Teleconference to accept final revisions to document. Approved revisions sent to a technical editor for review.

June 4 to 8, 2007. MARSSIM meeting to review technical edits and approve final version of MARSAME. The Work Group will also discuss final details for releasing the final version of MARSAME.

Attendees

U.S. Environmental Protection Agency – OERR/ERT: CAPT C. Petullo

U.S. Environmental Protection Agency – ORIA/HQ: K. Snead (by phone)

U.S. Environmental Protection Agency – Region 2: N. Azzam

U.S. Nuclear Regulatory Commission - NMSS: G. Powers

U.S. Nuclear Regulatory Commission - NMSS: R. Meck (by phone)

U.S. Department of Energy: A. Williams

U.S. Air Force: Lt. Col. C. Bias (by phone)

U.S. Navy: S. Doremus

U.S. Army: D. Alberth

U.S. Air Force Contractor: S. Hay, C. Gogolak

Action Items

C. Petullo

The contractor will review the entire document and ensure that all references to EPA QA documents are for the most recent versions.

The contractor will review the entire document and make sure the internal references to sections in Chapter 2 are consistent with the revisions to Chapter 2.

The contractor will extract information on why to perform a task from Sections 5.5, 5.6, and 5.7 and move the information to new appendices. All appendices will be reordered to reflect when they are introduced in the text and all reference to appendices will be reviewed for accuracy.

S. Doremus will prepare a complete table of symbols to be added to the introductory material at the beginning of the MARSAME supplement.

C. Gogolak will contact EPA concerning updates to the ProUCL software and the planned release of the final MARSAME.

The agency representatives will prepare a Federal Register announcement for the availability of the Public Review draft of MARSAME. G. Powers will coordinate placing the announcement in the Federal Register from NRC.

The Work Group will present the SAB with a question concerning the adequacy of MARSAME guidance in situations where the scan detection limit does not meet the survey objectives.

The contractor will review the entire document and ensure the primary units throughout the supplement are SI units.

The contractor will include an example calculation using the high count rate equation on line 1245 of Chapter 7.

The contractor will review the entire document for proper use of significant digits.

The contractor will reference the JAERI data in the Rad Toolbox software from NRC as the source of radiological data throughout MARSAME.

K. Snead will contact Mary Clark for a complete list of SAB/RAC members participating in the MARSAME consults.

A. Williams will provide language to include in Section 1.3 to address four DOE comments.

Work Group members will identify requirements for distributing public drafts of documents and provide these requirements during a conference call on Friday October 20, 2006.